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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/818,874 | 03/27/2001 | Bin Wei | 9038-118200 | 2448 |

7590 09/10/2004

Patrick R. Scanlon
Pierce Atwood
One Monument Square
Portland, ME 04101

| EXAMINER | |
|---|---|
| LAU, TUNG S | |
| **ART UNIT** | **PAPER NUMBER** |
| 2863 | |

DATE MAILED: 09/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/818,874 | WEI ET AL. | |
| | Examiner | Art Unit | |
| | Tung S Lau | 2863 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *22 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7,8,13 and 16-21* is/are rejected.

7)☒ Claim(s) *4-6,9-12,14 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

**1.** The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8, 17, 2, 3, 7, 13, 16, 18, 19, 21, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Reber (U.S. Patent 5,113,358).

Regarding to claim 1:

Reber discloses a method of monitoring machining in an electrochemical machining tool assembly having first and second tools arranged on opposite sides of a workpiece so as to define first and second gaps with said workpiece, said method comprising: mounting a first ultrasonic transducer in said first tool (abstratct); mounting a second ultrasonic transducer in said second tool; generating ultrasonic waves with said first and second ultrasonic transducers (Col. 3, Lines 1-50), detecting arrival times of reflections of said ultrasonic waves at said first and second ultrasonic transducers', and using said arrival times to calculate at least one of said first gap size, said second gap size, and thickness of said workpiece (Col. 3, Lines 1-50, Col. 10, Lines 27-55).

Regarding to claim 8

Reber discloses a method of monitoring machining in an electrochemical machining tool assembly having first and second tools, said method

comprising: mounting a first ultrasonic transducer in said first tool (fig. 5, unit 20); mounting a second ultrasonic transducer in said second tool; situating a workpiece between said first and second tools so as to define a first gap between said first tool and said workpiece and a second gap between said second tool and said workpiece (fig. 5, unit 21, 20), connecting a source of electric power to said first and second tools and to said workpiece, flowing an electrolytic fluid through said first and second gaps (Col. 3, Lines 1-50, Col. 10, Lines 27-55); generating ultrasonic waves with said first and second ultrasonic transducers, detecting a first arrival time of an ultrasonic wave reflected from an interface between said electrolytic fluid and said first tool; detecting a second arrival time of an ultrasonic wave reflected from an interface between said electrolytic fluid and a first side of said workpiece (Col. 3, Lines 1-50, Col. 10, Lines 27-55), detecting a third arrival time of an ultrasonic wave reflected from an interface between said electrolytic fluid and said second tool; and detecting a foudh arrival time of an ultrasonic wave reflected from an interface between said electrolytic fluid and a second side of said workpiece (Col. 3, Lines 1-50, Col. 10, Lines 27-55), and using said arrival times to calculate at least one of said first gap size, said second gap size, and thickness of said workpiece (Col. 3, Lines 1-50, Col. 10, Lines 27-55).

Regarding to claim 17

Reber discloses an electrochemical machining tool assembly comprising:

first and second tools spaced apart from one another so that a workpiece can be located there between; a first ultrasonic transducer mounted in said first tool (fig. 5, unit 20); a second ultrasonic transducer mounted in said second tool (fig. 5, unit 21); and means for calculating gap sizes and workpiece thickness from arrival times at said first and second ultrasonic transducers of reflections of ultrasonic waves generated by said first and second ultrasonic transducers (Col. 3, Lines 1-50, Col. 10, Lines 27-55).

Regarding to claim 2, Reber discloses first to forth arrival time (Col. 3, Lines 1-50, Col. 10, Lines 27-55); regarding claim 3, Reber discloses the step of using said arrival times to calculate at least one of said first gap size, said second gap size, and thickness of said workpiece includes calculating the ultrasonic time-of-flight in said first gap by subtracting said first arrival time from said second arrival time and calculating the ultrasonic time-of-flight in said second gap by subtracting said third arrival time from said fourth arrival time (abstract, Col. 3, Lines 1-50, Col. 10, Lines 27-55). Regarding to claims 7, 16, Reber discloses the workpiece relative to workpiece datum (fig. 5, unit 32). Regarding to claim 13, Reber discloses acoustic couplant between the second ultrasonic sensor and second tool (fig. 5, unit 21, 20). ). Regarding to claim 18, use for cutting surface (abstract); Regarding to claim 19, Reber discloses ultrasonic transducers including contact transducers (abstract). Regarding to claim 21, Reber discloses ultrasonic transducers in first and second tool (fig. 5, unit 21, 20), 20, regarding claim 20, the transducer including immersion transducer (abstract).

***Claim Objections***

**2.** Claims 4-6, 9-12, 14, 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitation of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: prior art fail to teach, regarding claim 4: arrival times to calculate at least one of said first gap size, said second gap size, and thickness of said workpiece further includes calculating said first gap size by multiplying said first gap ultrasonic time-of-flight by the ultrasound velocity in said first gap and dividing the resulting product by two. regarding claim 5, the second gap dividing the result product by two. Regarding claim 6, multiplication of the first gap and dividing by two. regarding claim 9, arrival times to calculate at least one of said first gap size, said second gap size, and thickness of said workpiece includes calculating the ultrasonic time-of-flight in said first gap by subtracting said first arrival time from said second arrival time and calculating the ultrasonic time-of-flight in said second gap by subtracting said third arrival time from said fourth arrival time.
Regarding claim 14, disconnecting said source of electric power while generating ultrasonic waves with said first and second ultrasonic transducers and detecting said arrival times. Regarding claim 15, regulating said source of electric power to minimize gas bubble generation on said first and second tools.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Claims 10-12 are objected due to their dependency on claim 9.

***Response to Arguments***

**3**. Applicant's arguments filed 7/22/2004 have been fully considered but they are not persuasive.

Applicant's arguments with respect to claim 1, 8, 17, 2, 3, 7, 13, 16, 18, 19, 21 have been considered but are moot in view of the new ground(s) of rejection.

**4**. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung S Lau whose telephone number is 571-272-2274. The examiner can normally be reached on M-F 9-5:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 571-272-2269. The fax phone numbers for the organization where this application or proceeding is assigned is 703-872-9306

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TL

John Barlow
Supervisory Patent Examiner
Technology Center 2800